EXHIBIT 41
REDACTED

ads Postmortem: DFP PSI Out of Memory when Matching Too Many Line Items

Owner:	███████████████
Collaborators:	████████████████████████ ████████████████████████,
Status:	draft *[Choose one of: draft, review, published]*
Postmortem Created:	2018-06-20 06:24
Last Updated:	2018-06-20
Self Link:	███████████████
Requiem Link:	███████████

*[Help text appears inside square brackets and will not be parsed. **Postmortem Menu → Fill Postmortem** can help to populate all parsed fields. Click on 'Postmortem' above next to the 'Help' Menu and then choose 'Fill Postmortem' from the submenu. go/pmag-template-help is available for additional help.]*
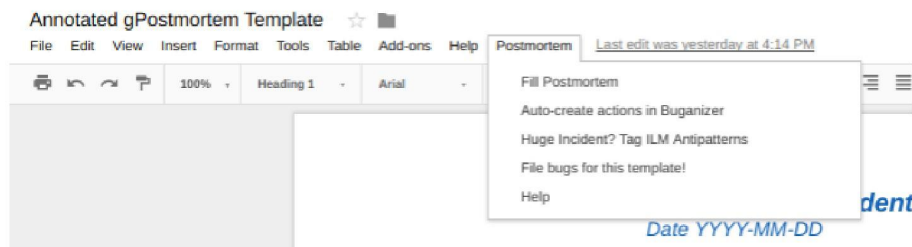
[Fields with gray background are parsed and stored in go/requiem. DO NOT change the Header formatting or delete tables, doing so can create parsing errors.]

Executive Summary

Impact:	*[Please note that any PII that you place in this field will be parsed by and visible in Requiem. Guidance on handling PII.]*
Root Cause:	

Problem Summary

Duration of problem:	
Product(s) affected:	Alphabet Management > Google > GPI & Ads > Google Ads > Display and Video Ads, and Analytics > LCS > Sell-side Platform > DRX > DRX Ad Serving
G3 Project(s) affected:	Google > Ads > AdSense / Display > DRX > Serving
% of product affected:	
User impact:	
SLO violation duration:	*n/a*
Revenue impact:	███
Partner impact:	████████████████████████████ ██████████████████
Simple severity:	████
Severity flags:	User Visible, Paying Customer, Lost Revenue
Detection:	
Resolution:	

Background (optional)

Impact (optional)

The escalation resulted in two different ways of dropping traffic:

1. failing to match any line items for queries across all publishers (even though line items were available). This happened because PSI and GFP Mixer were OOM-ing and crashed thus returning nothing to GFP Mixer and/or SuperMixer.
2. ███ █████

██████████████████████████████████████
██████████████████████████████████████
██████ ████████████████████████████

[REDACTED]

[REDACTED]

Root Causes and Trigger

Publisher ▮▮▮▮▮▮ has updated their setup and removed the custom key values from all their inventory. By doing so all their booked reservations started to match every query.

Inside DFP PSI there is a limit of up to 100K line items that can match and, in ▮▮▮▮▮▮ case, this limit was being reached for every query. This meant that PSI started using a lot more memory than expected and thus started running out of memory fast.

[REDACTED]

Lessons Learned

Things that went well:

- Identified root cause quickly.
- Once the root cause was discovered solutions to block that traffic were quickly implemented.

Things that went poorly:

- During the escalation there was a lot of confusion about the status of the rollbacks.

Where we got lucky:

- The single publisher triggering this behavior was discovered quickly.
- It was a single publisher issue and could shut it down.

Action Items

[(TI only) Postmortems for user facing outages must have at least one p0/p1 and marked as a bug or customer issue. These items are in scope for go/ursscope SLOs. It is not mandatory that other issues be marked as p0/p1. See go/pm-ai-bestpractices for more guidance.
(Other PAs) Root cause related AIs may be any priority, and should be of type bug, customer